AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A lens barrel comprising:

a stationary barrel;

first, second, and third lens support rings which are guided in a direction of an optical axis via said stationary barrel; and

a lens drive ring which is rotated about said optical axis to move each of said first lens support ring, said second lens support ring and said third lens support ring in said optical axis direction;

wherein said lens drive ring comprises:

a first extending guide portion which is engaged with a fixed extending guide portion formed on said stationary barrel to move said lens drive ring in said optical axis direction upon said lens drive ring being rotated;

an engaging portion which is engaged with a guiding portion formed on said first lens support ring, so that said lens drive ring and said first lens support ring are relatively rotatable about said optical axis and integrally movable in said optical axis direction;

a second extending guide portion, which is engaged with an extending guide portion formed on said second lens support ring, to move said second lens support ring in said optical axis direction relative to said lens drive ring via rotation of said lens drive ring; and

a third extending guide portion which is engaged with an extending guide portion formed on said third lens support ring to move said third lens support ring in said optical axis direction relative to said lens drive ring by said rotation of said lens drive ring.

2. (Original) The lens barrel according to claim 1, wherein said lens drive ring is molded with synthetic resin, and

wherein said engaging portion of said lens drive ring, said first extending guide portion, said second extending guide portion, and said third extending guide portion, are formed integral with said lens drive ring.

3. (Original) The lens barrel according to claim 1, wherein said engaging portion of said lens drive ring, said first extending guide portion, said second extending guide portion, and said third extending guide portion are all formed as projections that project from said lens drive ring.

4. (Original) The lens barrel according to claim 1, wherein said second extending guide portion and said third extending guide portion are formed on one and the other of inner and outer peripheral surfaces of said lens drive ring, respectively.

5. (Previously Presented) The lens barrel according to claim 1, wherein said lens drive ring comprises a rotational transfer recess to receive a driving force by which said lens drive ring rotates.

6. (Previously Presented) The lens barrel according to claim 1, wherein said stationary barrel comprises a linear guide portion for guiding one of said first lens support ring, and said second and third lens support rings in said optical axis direction; and

wherein said first lens support ring comprises linear guide portion for guiding the other of said first lens support ring, and said second and third lens support rings in said optical axis direction.

7. (Previously Presented) The lens barrel according to claim 1, further comprising:

a rotating ring supported by one of said second lens support ring and said third lens support ring to be rotatable about said optical axis; and

a fourth lens support ring which is guided in said optical axis direction without rotating about said optical axis, said fourth lens support ring being moved in said optical axis direction via rotation of said rotating ring;

wherein said lens drive ring includes a lever via which said rotation of said lens drive ring is transferred to said rotating ring.

8. (Previously Presented) A lens barrel having a first lens group and a second lens group which are movable in a direction of an optical axis relative to each other, said lens barrel comprising:

a first lens support ring which supports said first lens group;

a rotating ring which is supported by said first lens support ring to be rotatable about said optical axis, wherein said rotating ring is rotated about said optical axis;

a second lens support ring which holds said second lens group, and is positioned between an inner peripheral surface of said rotating ring and an outer peripheral surface of said first lens support ring;

a linear guide bottomed groove formed on one of an outer peripheral surface of said first lens support ring and an inner peripheral surface of said second lens support ring to extend parallel to said optical axis;

a linear guide projection formed on the other of said outer peripheral surface of said first lens support ring and said inner peripheral surface of said second lens support ring to be slidably engaged in said linear guide bottomed groove;

a extending guide protrusion formed on one of an inner peripheral surface of said rotating ring and an outer peripheral surface of said second lens support ring; and

a follower pin formed on the other of said inner peripheral surface of said rotating ring and said outer peripheral surface of said second lens support ring, said follower pin engaging

with said extending guide protrusion;

wherein each of said first lens support ring, said second lens support ring, and said rotating ring is formed as a solid annular member having no radial through holes.

9. (Previously Presented) The lens barrel according to claim 8, wherein said extending guide protrusion has a rectangular shape in cross section; and

wherein said follower pin comprises at least one pair of cylindrical follower pins, each said pair of cylindrical follower pins holding a corresponding said extending guide protrusion therebetween.

10. (Previously Presented) The lens barrel according to claim 8, wherein said follower pin comes into linear contact with said extending guide protrusion along a line extending substantially in a radial direction of said lens barrel.

11. (Previously Presented) The lens barrel according to claim 8, wherein each said extending guide protrusion comprises a non-linear contour.

12. (Original) The lens barrel according to claim 8, wherein each of said first lens support ring, said second lens support ring, and said rotating ring is molded with synthetic

resin.

13. (Previously Presented) The lens barrel according to claim 8, wherein said extending guide protrusion is formed integral with one of said rotating ring and said second lens support ring, and wherein said follower pin is formed on the other of said rotating ring and said second lens support ring.

14. (Previously Presented) The lens barrel according to claim 8, wherein said linear guide projection is formed integral with one of said first lens support ring and said second lens support ring.

15. (Previously Presented) The lens barrel according to claim 8, wherein one of said first lens support ring and said rotating ring comprises a circumferential bottomed groove which extends circumferentially;

wherein said the other of said first lens support ring and said rotating ring comprises a guide projection which is engaged in said circumferential bottomed groove; and

wherein said first lens support ring and said rotating ring are coupled to each other to be rotatable relative to each other due to an engagement of said guide projection with said circumferential bottomed groove.

16. (Original) The lens barrel according to claim 8, wherein each of said first lens group and said second lens group serves a lens group of a zoom lens system.

17. (Previously Presented) The lens barrel according to claim 16, further comprising:

a third lens group which differs from said first and second lens groups;

a zoom ring which can be manually rotated;

a cam ring which is rotated by rotation of said zoom ring to move said third lens group in said optical axis direction; and

a rotational transfer arm which extends from said rotating ring and is engaged with said cam ring to receive a rotational force from said cam ring;

wherein a rotation of said zoom ring causes said rotating ring to rotate to thereby move said first lens group and second lens group in said optical axis direction relative to each other.

18. (Previously Presented) A lens barrel having a first lens group and a second lens group which are relatively movable in a direction of the optical axis thereof, said lens barrel comprising:

a stationary barrel;

a drive ring which is supported by said stationary barrel to move in said optical axis

direction while rotating about said optical axis relative to said stationary barrel upon being rotated;

a first movable ring which supports said first lens group and is guided along said optical axis, said first movable ring being supported by said drive ring so that said drive ring is rotatable about said optical axis and integrally movable with said first movable ring in said optical axis direction; and

a second movable ring which supports said second lens group and is guided in said optical axis direction without rotating about said optical axis, a rotation of said drive ring relative to said second movable ring causing said second movable ring to move in said optical axis direction relative to said drive ring;

wherein said first movable ring moves together with said drive ring in said optical axis direction, and at the same time, said second movable ring concurrently moves in said optical axis direction relative to said drive ring when said drive ring moves in said optical axis direction while rotating about said optical axis.

19. (Previously Presented) The lens barrel according to claim 18, wherein said first movable ring comprises:

a linear moving ring which is guided in said optical axis direction without rotating about said optical axis, said linear moving ring being supported by said drive ring so as to

be relatively rotatable with respect to said drive ring about said optical axis, and to be integrally movable with said drive ring in said optical axis direction; and

a lens support ring which supports said first lens group, and is positioned in said linear moving ring to be supported thereby so that said lens support ring can be moved in the optical axis direction with respect to said linear moving ring while rotating about said optical axis relative to said linear moving ring;

wherein when said linear moving ring is moved forward and rearward in the optical axis direction, said lens support ring integrally moves forward and rearward together with said linear moving ring in said optical axis direction; and

wherein when said lens support is individually rotated, said lens support ring moves forward and rearward in said optical axis direction relative to said linear moving ring.

20. (Original) The lens barrel according to claim 18, wherein said first movable ring is guided by said stationary barrel so as to be movable in said optical axis direction without rotating about said optical axis; and

wherein said second movable ring is guided by said first movable ring to be movable in said optical axis direction without rotating about said optical axis.

21. (Previously Presented) The lens barrel according to claim 20, wherein said stationary barrel comprises a first linear guide portion which extends in said optical axis direction;

wherein said second movable ring comprises a second linear guide portion which extends in said optical axis direction;

wherein said first movable ring comprises:

a first linear guide projection which extends parallel to said optical axis, and is engaged with said first linear guide portion to guide said first movable ring in said optical axis direction without rotating said first movable ring about said optical axis; and

a second linear guide projection which extends parallel to said optical axis, and is engaged with said second linear guide portion to guide said second movable ring in said optical axis direction without rotating said second movable ring about said optical axis;

wherein said first linear guide projection and said second linear guide projection are formed on an outer peripheral surface of said first movable ring at the same position in a circumferential direction thereof and at different positions in said optical axis direction.

22. (Previously Presented) The lens barrel according to claim 18, further comprising:

a rib-shaped extending guide projection formed on one of inner and outer peripheral surfaces of said stationary barrel to extend in a direction inclined with respect to said optical

axis; and

a follower projection formed on one of inner and outer peripheral surfaces of said drive ring to be engaged with said rib-shaped extending guide projection, said drive ring moving in said optical axis direction while rotating about said optical axis relative to said stationary barrel due to an engagement of said rib-shaped extending guide projection with said follower projection.

23. (Previously Presented) The lens barrel according to claim 22, further comprising:

a guide projection which projects radially from one of a first peripheral surface of said drive ring and a second peripheral surface of said first movable ring, said first peripheral surface and said second peripheral surface facing each other; and

a circumferential groove formed on the other of said first peripheral surface and said second peripheral surface;

wherein said guide projection is engaged in said circumferential groove, whereby said drive ring is rotatable about said optical axis relative to said first movable ring and integrally movable with said first movable ring in said optical axis direction.

24. (Previously Presented) The lens barrel according to claim 23, further comprising:

a second rib-shaped extending guide projection formed on one of inner and outer

peripheral surfaces of said drive ring to extend in a direction inclined with respect to both said optical axis and the direction in which said rib-shaped extending guide projection extends; and

a lead groove formed on one of inner and outer peripheral surfaces of said second movable ring;

wherein said second rib-shaped extending guide projection is engaged in said lead groove, whereby said second movable ring moves in said optical axis direction relative to said drive ring when said drive ring is rotated about said optical axis relative to said stationary barrel.

25. (Currently Amended) A lens barrel comprising:

a stationary barrel;

a drive ring which is supported by said stationary barrel to move in a direction of the optical axis of a lens of said lens barrel, while rotating about said optical axis relative to said stationary barrel when rotated; and

a first movable ring which supports a first lens group and is guided along said optical axis, said first movable ring being supported by said drive ring so that said drive ring is rotatable about said optical axis relative to said first movable ring and integrally movable with said first movable ring in said optical axis direction;

wherein said drive ring and said first movable ring move together in said optical axis direction while rotating about said optical axis relative to each other when said drive ring is rotated about said optical axis;

said first movable ring comprising:

a linear moving ring which is guided in said optical axis direction without rotating about said optical axis, said linear moving ring being supported by said drive ring so as to be relatively rotatable with respect to said drive ring about said optical axis, and to be integrally movable with said drive ring in said optical axis direction; and

a lens support ring which supports said first lens group, and is positioned in said linear moving ring to be supported thereby so that said lens support ring can be moved in the optical axis direction with respect to said linear moving ring while rotating about said optical axis relative to said linear moving ring;

wherein when said linear moving ring is moved forward and rearward in the optical axis direction, said lens support ring integrally moves forward and rearward together with said linear moving ring in said optical axis direction; and

wherein when said lens support is individually rotated, said lens support ring moves forward and rearward in said optical axis direction relative to said linear moving ring.

26. (Canceled)

27. (Previously Presented) The lens barrel according to claim 25, further comprising:

a rib-shaped extending guide projection formed on one of inner and outer peripheral surfaces of said stationary barrel to extend in a direction inclined with respect to said optical axis; and

a follower projection formed on one of inner and outer peripheral surfaces of said drive ring to be engaged with said rib-shaped extending guide projection, said drive ring moving in said optical axis direction while rotating about said optical axis relative to said stationary barrel due to an engagement of said rib-shaped extending guide projection with said follower projection.

28. (Previously Presented) The lens barrel according to claim 25, further comprising:

a guide projection which projects radially from one of a first peripheral surface of said drive ring and a second peripheral surface of said first movable ring, said first peripheral surface and said second peripheral surface facing each other; and

a circumferential groove formed on the other of said first peripheral surface and said second peripheral surface;

wherein said guide projection is engaged in said circumferential groove, whereby said drive ring is rotatable about said optical axis relative to said first movable ring and integrally movable with said first movable ring in said optical axis direction.

29. (Previously Presented) The lens barrel according to claim 25, further comprising:

a second lens group; and

a second movable ring which supports said second lens group, and is guided in said optical axis direction without rotating about said optical axis;

wherein said first movable ring holds said first lens group; and

wherein said second movable ring moves in said optical axis direction relative to said drive ring when said drive ring rotates about said optical axis relative to said stationary barrel.

30. (Previously Presented) The lens barrel according to claim 29, further comprising:

a second rib-shaped extending guide projection formed on one of inner and outer peripheral surfaces of said drive ring to extend in a direction inclined with respect to both said optical axis and the direction in which said rib-shaped extending guide projection extends; and

a lead groove formed on one of inner and outer peripheral surfaces of said second movable ring;

wherein said second rib-shaped extending guide projection is engaged in said lead groove, whereby said second movable ring moves in said optical axis direction relative to said drive ring when said drive ring is rotated about said optical axis relative to said

stationary barrel.

31. (Original) The lens barrel according to claim 29, wherein said first movable ring is guided by said stationary barrel to be movable in said optical axis direction without rotating about said optical axis; and

wherein said second movable ring is guided by said first movable ring to be movable in said optical axis direction without rotating about said optical axis.

32. (Previously Presented) The lens barrel according to claim 31, wherein said stationary barrel comprises a first linear guide portion which extends in said optical axis direction;

wherein said second movable ring comprises a second linear guide portion which extends in said optical axis direction;

wherein said first movable ring comprises:

a first linear guide projection which extends parallel to said optical axis and is engaged with said first linear guide portion to guide said first movable ring in said optical axis direction without rotating said first movable ring about said optical axis; and

a second linear guide projection which extends parallel to said optical axis, and is engaged with said second linear guide portion to guide said second movable ring in said

optical axis direction without rotating said second movable ring about said optical axis;

wherein said first linear guide projection and said second linear guide projection are formed on an outer peripheral surface of said first movable ring at the same position in a circumferential direction thereof, at different positions in said optical axis direction.

33. (Previously Presented) A lens barrel comprising:

a stationary barrel;

a drive ring which is supported by said stationary barrel to move in a direction of an optical axis while rotating about said optical axis relative to said stationary barrel when said drive ring is rotated; and

a first movable ring which supports a first lens group and is guided in said optical axis direction without rotating about said optical axis, a rotation of said drive ring relative to said first movable ring causing said first movable ring to move in said optical axis direction relative to said drive ring;

wherein said first movable ring moves in said optical axis direction relative to said drive ring when said drive ring moves in said optical axis direction while being rotated about said optical axis.

34. (Previously Presented) The lens barrel according to claim 33, further comprising:

a rib-shaped extending guide projection formed on one of inner and outer peripheral surfaces of said stationary barrel to extend in a direction inclined with respect to said optical axis; and

a follower projection formed on one of inner and outer peripheral surfaces of said drive ring to be engaged with said rib-shaped extending guide projection, said drive ring moving in said optical axis direction while rotating about said optical axis relative to said stationary barrel due to an engagement of said rib-shaped extending guide projection with said follower projection.

35. (Previously Presented) The lens barrel according to claim 33, further comprising:

a second rib-shaped extending guide projection formed on one of inner and outer peripheral surfaces of said drive ring to extend in a direction inclined with respect to both said optical axis and the direction in which said rib-shaped extending guide projection extends; and

a lead groove formed on one of inner and outer peripheral surfaces of said first movable ring;

wherein said second rib-shaped extending guide projection is engaged in said lead groove, whereby said first movable ring moves in said optical axis direction relative to said

drive ring when said drive ring is rotated about said optical axis relative to said stationary barrel.

36. (Previously Presented) The lens barrel according to claim 33, further comprising:

a second lens group; and

a second movable ring which supports said second lens group and is guided in said optical axis direction;

wherein said first movable ring supports said first lens group; and

wherein said second movable ring is supported by said drive ring so that said drive ring is rotatable about said optical axis relative to said second movable ring and integrally movable with said second movable ring in said optical axis direction.

37. (Previously Presented) The lens barrel according to claim 33, wherein said second movable ring comprises:

a linear moving ring which is guided in said optical axis direction without rotating about said optical axis, said linear moving ring being supported by said drive ring so as to be relatively rotatable with respect to said drive ring about said optical axis, and to be integrally movable with said drive ring in said optical axis direction; and

a lens support ring which supports said second lens group, and is positioned in said

linear moving ring to be supported thereby so that said lens support ring can be moved in the optical axis direction with respect to said linear moving ring while rotating about said optical axis relative to said linear moving ring;

wherein when said linear moving ring is moved forward and rearward in the optical axis direction, said lens support ring integrally moves forward and rearward together with said linear moving ring in said optical axis direction; and

wherein when said lens support is individually rotated, said lens support ring moves forward and rearward in said optical axis direction relative to said linear moving ring.

38. (Previously Presented) The lens barrel according to claim 36, further comprising:

a guide projection which projects radially from one of a first peripheral surface of said drive ring and a second peripheral surface of said second movable ring, said first peripheral surface and said second peripheral surface facing each other; and

a circumferential groove formed on the other of said first peripheral surface and said second peripheral surface;

wherein said guide projection is engaged in said circumferential groove, whereby said drive ring is rotatable about said optical axis relative to said second movable ring and integrally movable with said second movable ring in said optical axis direction.

39. (Original) The lens barrel according to claim 36, wherein said second movable ring is guided by said stationary barrel to be movable in said optical axis direction without rotating about said optical axis; and

wherein said first movable ring is guided by said second movable ring to be movable in said optical axis direction without rotating about said optical axis.

40. (Previously Presented) The lens barrel according to claim 39, wherein said stationary barrel comprises a first linear guide portion which extends in said optical axis direction;

wherein said first movable ring comprises a second linear guide portion which extends in said optical axis direction;

wherein said second movable ring comprises:

a first linear guide projection which extends parallel to said optical axis and is engaged with said first linear guide portion to guide said second movable ring in said optical axis direction without rotating said second movable ring about said optical axis; and

a second linear guide projection which extends parallel to said optical axis and is engaged with said second linear guide portion to guide said first movable ring in said optical axis direction without rotating said first movable ring about said optical axis;

wherein said first linear guide projection and said second linear guide projection are

formed on an outer peripheral surface of said second movable rings at the same position in a circumferential direction thereof at different positions in said optical axis direction.

41. (Previously Presented) A lens barrel comprising:

a stationary barrel;

a hand-operated ring supported by said stationary barrel to be manually rotated;

a lens group which is movable in a direction of the optical axis thereof;

a lever which is fixed, at one end thereof, to an inner peripheral surface of said hand-operated ring, and wherein the other end of said lever is associated with said lens group, wherein a rotation of said hand-operated ring causes said lens group to move in said optical axis direction via said lever;

a driving gear; and

an annular gear, provided independently of said hand-operated ring, which meshes with said driving gear, the center of said annular gear being positioned on said optical axis;

wherein said annular gear is supported by said stationary barrel to be rotatable about said optical axis relative to said stationary barrel;

and

wherein said annular gear and said hand-operated ring are engaged with each other so as to move integrally in a circumferential direction of said lens barrel via said lever.

42. (Previously Presented) The lens barrel according to claim 41, wherein said annular gear comprises a radial bottomed groove which is formed on a front surface of said annular gear to extend in a radial direction of said lens barrel, said front surface facing forward of said optical axis direction; and

wherein said lever includes a radial portion which is engaged in said radial bottomed groove to be immovable in said circumferential direction relative to said radial bottomed groove.

43. (Previously Presented) The lens barrel according to claim 42, wherein said lever comprises a pair of parallel arms which extend forward from said radial portion of said lever at different radial positions thereat;

wherein one of said pair of parallel arms is fixed to said hand-operated ring; and

wherein the other of said pair of parallel arms is connected to a lens supporting member, which supports said lens group, whereby said hand-operated ring is integrally movable with said lens supporting member in a circumferential direction.

44. (Previously Presented) The lens barrel according to claim 41, wherein said stationary barrel comprises a set of projections at different positions on said stationary barrel in a circumferential direction about said optical axis; and

wherein said annular gear comprises a corresponding set of circumferential grooves, in which said set of projections are respectively engaged, whereby said annular gear is rotatably supported by said stationary barrel.

45. (Original) The lens barrel according to claim 41, wherein said annular gear is molded with synthetic resin.

46. (Previously Presented) The lens barrel according to claim 41, wherein said lens barrel can be mounted to, and dismounted from, a camera body, said camera body comprising a second driving gear which gives rotation to said driving gear.

47. (Original) The lens barrel according to claim 41, wherein said lens group serves as a focusing lens group, said rotation of said hand-operated ring causing said focusing lens group to move in said optical axis direction via said lever to perform a focusing operation.

48. (Previously Presented) The lens barrel according to claim 47, wherein said lens barrel constitutes a zoom lens barrel, said lens group also serving as a lens group of a zoom lens system, wherein said lens barrel further comprises:

a linear moving ring which is guided in said optical axis direction without rotating

about said optical axis, said linear moving ring being moved when a zooming operation is performed; and

a lens support ring which supports said focusing lens group, and is positioned in said linear moving ring to be supported thereby, so that said lens support ring can be moved in the optical axis direction with respect to said linear moving ring while rotating about said optical axis relative to said linear moving ring;

wherein said rotation of said hand-operated ring is transferred to said lens support ring via said lever; and

wherein said lens support ring moves forward and rearward in said optical axis direction relative to said linear moving ring when rotated forwardly and reversely via said lever, respectively.

49. (Original) The lens barrel according to claim 41, wherein said lens barrel serves as a zoom lens barrel, said lens group comprising a plurality of movable lens groups serving as a zoom lens system, said rotation of said hand-operated ring causing said plurality of movable lens groups to move in said optical axis direction to vary a focal length.